

LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of all claims as pending in the application, including newly added claims 21-22 and claims 1-4, 6, 11-14 and 20 as amended as follows:

Claim 1 (Currently Amended): ~~Method~~A method of measuring dimensions and alignment error of a thin film magnetic head to monitor a lapping process heads formed on a substrate, including comprising the steps of:

illuminating a magnetoresistance effect element and a resistance detector element which is formed for monitoring the a lapping process, both of which are formed on a the substrate, with illuminating light whose wavelength is 300 nm or less;

forming an image by imaging light reflected from said elements;

converting said image to an image signal through photoelectric conversion;

and

detecting dimensions and alignment error ~~geometrical information~~ of the above-mentioned magnetoresistance effect element and the above-mentioned resistance detector element formed on the substrate ~~for monitoring the lapping process~~ from said image signal.

Claim 2 (Currently Amended): ~~Method of measuring dimensions and alignment of a thin film magnetic head~~A method according to claim 1, wherein the illuminating light includes a wavelength component of 248 nm.

Claim 3 (Current Amended): ~~Method of measuring dimensions and alignment of a thin film magnetic head~~A method according to claim 1, wherein

the illuminating light includes a wavelength component of 266 nm.

Claim 4 (Currently Amended): ~~Method of measuring dimensions and alignment of a thin film magnetic head~~A method according to claim 1, wherein the illuminating light includes a wavelength component of 213 nm.

Claim 5 (Cancel)

Claim 6 (Currently Amended): ~~Method of measuring dimensions and alignment of a thin film magnetic head~~A method according to claim 1, wherein the magnetoresistance effect element and the resistance detector element ~~for monitoring the lapping~~ are covered with end face protection films.

Claims 7-10 (Withdrawn)

Claim 11 (Currently Amended): ~~Apparatus~~An apparatus for measuring dimensions and alignment ~~error of thin film magnetic head~~heads formed on a substrate during a lapping process, comprising:

a light source for emitting light whose wavelength is 300 nm or less;

illuminating means for illuminating a magnetoresistance effect element and a resistance detector element which is formed for monitoring ~~the~~ a lapping process, both of which are formed on a substrate, with illuminating light emitted from said light source;

imaging means for obtaining an optical image of said substrate₁ illuminated by said illuminating means;

image pick up means for converting an optical image of said substrate₁ which is imaged by said imaging means, to an image signal through photoconversion; and

~~geometrical information~~-detecting means for detecting dimensions and alignment error ~~geometrical information~~ of said magnetoresistance effect element and said resistance detector element formed on the substrate ~~for monitoring the lapping~~ from said image signal that is obtained by said image pick up means.

Claim 12 (Currently Amended): ~~Apparatus for measuring dimensions and alignment of a thin film magnetic head~~An apparatus according to claim 11, wherein said light source emits light having a wavelength of 248 nm.

Claim 13 (Currently Amended): ~~Apparatus for measuring dimensions and alignment of a thin film magnetic head~~An apparatus according to claim 11, wherein said light source emits light having a wavelength of 266 nm.

Claim 14 (Currently Amended): ~~Apparatus for measuring dimensions and alignment of a thin film magnetic head~~An apparatus according to claim 11, wherein said light source emits light having a wavelength of 213 nm.

Claims 15-16 (Cancel)

Claims 17-19 (Withdrawn)

Claim 20 (Currently Amended): ~~Method of measuring dimensions and alignment of a thin film magnetic head~~A method according to claim 1, wherein the illuminating light has a wavelength of 200 nm.

Claim 21 (Newly Added): A method according to claim 1, further comprising a step of displaying the measured results at least one of the variations in

dimensions of the elements or distribution of alignment error on a display.

Claim 22 (Newly Added) An apparatus according to claim 11, further comprising a display for displaying the measured results at least one of the variations in dimensions of the elements or distribution of alignment error.

AMENDMENTS TO THE DRAWINGS:

The attached sheets of drawings include changes to FIGs. 3, 4, 7, 9, 12-14 and 16. These sheets of drawings, which includes FIGs. 3, 4, 7, 9, 12-14 and 16, replaces the original sheets of drawings, including FIGs. 3, 4, 7, 9, 12-14 and 16.

Attachment:

EXHIBIT A: Replacement Sheets (FIGs. 3, 4, 7, 9, 12-14 and 16)

EXHIBIT B: Annotated Sheets Showing Changes
(FIGs. 3, 4, 7, 9, 12-14 and 16)